

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): A regenerator for a wavelength division multiplex transmission system comprising:
 - a demultiplexer adapted to separate the signals of various channels;
 - a plurality of optical modulators each adapted to receive signals from the demultiplexer and a modulation clock from ~~a~~the same clock distribution unit; and
 - a multiplexer adapted to combine the signals modulated by said modulators, wherein the clock distribution unit comprises:
 - a reference clock; and,
 - for each modulator, means for synchronizing the phase of a copy of the reference clock with the signals applied to the modulator.
2. (previously presented): The regenerator of claim 1, wherein the phase synchronization means comprises a phase-locked loop for each modulator.
3. (previously presented): The regenerator of claim 2, wherein the phase-locked loop comprises a phase shifter receiving a copy of the reference clock and supplying the modulation clock

and the phase shifter is controlled in accordance with the average power of the output signals of the modulator.

4. (previously presented): The regenerator of claim 3, wherein the phase-locked loop comprises a coupler adapted to sample a portion of the output signals of the modulator and a photodiode adapted to receive the signals from the coupler and to supply a voltage representative of the average power of the output signals of the modulator.

5. (original): The regenerator of claim 4, wherein the phase shifter is controlled by a signal in accordance with the difference between said voltage and a reference voltage.

6. (original): The regenerator of claim 5, wherein the reference voltage depends on the total power of the signals at the output of the regenerator.

7. (original): The regenerator of claim 5, wherein the reference voltage is remote-controlled.

8. (original): The regenerator of claim 1, wherein the reference clock is supplied by a voltage-controlled oscillator.

9. (original): The regenerator of claim 8, wherein the oscillator is controlled in accordance with the signals applied to the regenerator.

10. (previously presented): The regenerator of claim 8, further comprising:
a coupler for sampling a portion of the input signals of the regenerator; and
a clock recovery circuit adapted to receive signals sampled by the coupler and to supply at its output a control signal for the oscillator.

11. (previously presented): A wavelength division multiplex transmission system comprising a regenerator according to claim 1.

12. (previously presented): A regenerator according to claim 1, wherein the plurality of optical modulators directly receive signals from the demultiplexer.

13. (previously presented): A regenerator according to claim 2, wherein said phase-locked loop comprises:

a phase controller;

a photodiode; and

an amplifier.

14. (previously presented): A regenerator for a wavelength division multiplex transmission system comprising:

a demultiplexer adapted to separate the signals of various channels;

a clock distribution unit;

a plurality of optical modulators each adapted to receive signals from the demultiplexer and a modulation clock from the clock distribution unit; and

a multiplexer adapted to combine the signals modulated by said modulators,

wherein the clock distribution unit comprises:

a reference clock; and,

for each modulator, means for synchronizing the phase of a copy of the reference clock with the signals applied to the modulator.

15. (new): A regenerator for a wavelength division multiplex transmission system comprising:

a demultiplexer adapted to separate the signals of various channels;

only one clock distribution unit;

a plurality of optical modulators each adapted to receive signals from the demultiplexer and a modulation clock from the only one clock distribution unit; and

a multiplexer adapted to combine the signals modulated by said modulators,

wherein the clock distribution unit comprises:

a reference clock; and,

for each modulator, means for synchronizing the phase of a copy of the reference clock with the signals applied to the modulator.